PRIORITY POLLUTANT ANALYSIS
TIMET CORPORATION

FEBRUARY 1982
TECHNICAL REPORT I0040-01

BY

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February 22, 1982

Ms. D.R. Stauver
Timet Corp.
100 Titanium Way
Toronto, Ohio 43964

Dear Ms. Stauver:

In accordance with your purchase order number 61058, dated 11 February 1982, we hereby submit three copies of our Priority Pollutant Analysis Report on samples collected at your Toronto, Ohio facility.

Thank you for the opportunity to be of service to Timet Corporation.

Sincerely,

AQUA TECH ENVIRONMENTAL CONSULTANTS, INC.

Jeffrey A. Smith
Chemical Branch Manager

JAS/ks
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Overview

On 5 January 1982, personnel from Timet collected three (3) twenty-four hour composited samples from selected outfalls at the Toronto, Ohio plant and the samples were hand delivered in a refrigerated container (4°C) on 7 January, 1982 to the Aqua Tech laboratory in Melmore, Ohio. At the request of the client, comprehensive laboratory analyses for selected Priority Pollutants were performed.

Methodology

The Timet outfalls were analyzed using recommended U.S. EPA procedures. The individual methods are summarized in the following paragraphs:

Metals - Mercury was analyzed by the cold vapor atomic absorption technique (U.S. EPA Method 245.1). All other metals were analyzed by the method of standard additions, using either flame or graphite furnace atomic absorption. Treatment of all samples by nitric acid digestion preceded instrumental analysis.

Phenols - Each sample was analyzed for total phenols utilizing a preliminary manual distillation followed by colorimetric analysis (U.S. EPA Method 420.1).

Cyanides - A manual distillation followed by specific ion analysis was the method of choice (Standard Methods, 15th Edition, Methods 412B and 412E).

Volatile Organics - Purge and trap gas chromatography using either a Hall conductivity or flame ionization detector was used to screen the samples for volatile Priority Pollutants. Confirmation of any detected compounds was accomplished by utilization of á second confirmatory chromatographic column. (U.S. EPA Methods 601 and 602).

Nonvolatile Organics; Acid and Base-neutral Fractions - The Extraction of the samples with methylene chloride at basic pH (>11) followed by a similar

extraction at acidic pH (<2) separated any organics present into base-neutral and acidic organic fractions. Both fractions were concentrated and analyzed by capillary gas chromatography using both flame ionization and electron capture detectors (based on U.S. EPA Methods 609-612).

Analytical Results

The laboratory results for the selected outfalls are illustrated in Tables 1-4. The only Priority Pollutant organics detected occurred in the volatile fraction. The compound, 1,1,1-trichloroethane, was detected at part per billion levels in all three outfalls. The detection limits (less than values) for other compounds varied according to method efficiency and instrument sensitivity.

Table 1. Analytical Results: Timet Outfalls Collected 1/5/82; Priority Pollutant Metals, Cyanide and Phenols

Parameter	Concentration (ug/l) Outfall 001	Outfall 003	Outfall 006
Antimony	< 5	< 5	< 5
Arsenic	< 2	< 2	< 2
Beryllium	< 0.5	< 5	< 0.5
Cadmium	0.8	1.0	< 0.5
Chromium	4	48	6
Copper	38	36	4
Lead	5	4	< 2
Mercury	< 0.2	< 0.2	< 0.2
Nickel	10	62	16
Selenium	< 2	< 2	< 2
Silver	20	<10	12
Thallium	< 2	< 2	< 2
Zinc	20	120	30
Cyanide, Total	<10	<10	<10
Phenols	<10	<10	<10

Table 2. Analytical Results: Timet Outfalls Collected 1/19/82; Volatile Organic Priority Pollutants

Parameter	Concentration (ug/l) Outfall 001	Outfall 003	Outfall 006
Acrolein	<100	<100	<100
Acrylonitrile	<100	<100	<100
Benzene	< 1	< 1	< 1
Bromoform	< 1	< 1	< 1
Carbon Tetrachloride	< 0.2	< 0.2	< 0.2
Chlorobenzene	< 0.5	< 0.5	< 0.5
Chlorodibromomethane	< 0.3	< 0.3	< 0.3
Chloroethane	< 1	< 1	< 1
2-Chloroethyl vinyl ether	< 1	< 1	< 1
Chloroform	< 0.2	< 0.2	< 0.2
Dichlorobromomethane	< 0.2	< 0.2	< 0.2
Dichlorodifluoromethane	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane	< 1	< 1	< 1
1,2-Dichloroethane	< 0.2	< 0.2	< 0.2
1,1-Dichloroethylene	< 1	< 1	< 1
1,2-Dichloropropane	< 0.2	< 0.2	< 0.2
1,2-Dichloropropylene	< 0.3	< 0.3	< 0.3
Ethyl Benzene	< 2	< 2	< 2
Methyl Bromide	< 10	< 10	< 10
Methyl Chloride	< 10	< 10	< 10
Methylene Chloride	< 0.1	< 0.1	< 0.1
1,1,2,2,-Tetrachloroethane	< 0.2	< 0.2	< 0.2
Tetrachloroethylene	< 0.2	< 0.2	< 0.2
Toluene	< 1	< 1	< 1
1,2-trans-Dichloroethylene	< 0.4	< 0.4	< 0.4
1,1,1-Trichloroethane	11.2	33	43
1,1,2-Trichloroethane	< 0.3	< 0.3	< 0.3
Trichloroethylene	< 0.2	< 0.2	< 0.2
Trichlorofluoromethane	< 0.4	< 0.4	< 0.4
Vinyl Chloride	< 5	< 5	< 5

Table 3. Analytical Results: Timet Outfalls Collected 1/5/82; Acid Fraction Priority Pollutants

Parameter	Concentration (ug/l) Outfall 001	Outfall 003	Outfall 006
2-Chlorophenol	< 6	< 6	< 6
2,4-Dichlorophenol	<10	<10	<10
2,4-Dimethylphenol	< 6	< 6	< 6
4,6-Dinitro-o-Cresol	<18	<18	<18
2,4-Dinitrophenol	<25	<25	<25
2-Nitrophenol	<11	<11	<11
4-Nitrophenol	<16	<16	<16
p-Chloro-m-Cresol	<10	<10	<10
Pentachlorophenol	<25	<25	<25
Phenol	<10	<10	<10
2,4,6-Trichlorophenol	<15	<15	<15

Table 4. Analytical Results: Timet Outfalls Collected 1/5/82; Priority Pollutant Base-Neutral Organic Fraction

Parameter	Concentration (ug/l) Outfall 001	Outfall 003	Outfall 006
Acenaphthene	< 2	< 2	< 2
Acenaphthylene	< 2	< 2	< 2
Anthracene	< 2	< 2	< 2
Benzidine	< 5	< 5	< 5
Benzo(a)anthracene	< 3	< 3	< 3
Benzo(a)pyrene	< 5	< 5	< 5
3,4-Benzofluoranthene	< 5	< 5	< 5
Benzo(ghi)perylene	<10	<10	<10
Benzo(k)fluoranthene	< 5	< 5	< 5
Bis(2-chloroethoxy)methane	< 2	< 2	< 2
Bis(2-chloroethyl)ether	< 2	< 2	< 2
Bis(2-chloroisopropyl)ether	< 2	< 2	< 2
Bis(2-ethylhexyl)phthalate	< 3	< 3	< 3
4-Bromophenyl phenyl ether	< 3	< 3	< 3
Butyl Benzyl Phthalate	< 3	< 3	< 3
2-Chloronaphthalene	< 2	< 2	< 2
4-Chlorophenyl phenyl ether	< 2	< 2	< 2
Chrysene	< 3	< 3	< 3
Dibenzo(a,h)anthracene	<10	<10	<10
1,2-Dichlorobenzene	< 1	< 1	< 1
1,3-Dichlorobenzene	< 1	< 1	< 1
1,4-Dichlorobenzene	< 1	< 1	< 1
3,3'-Dichlorobenzidine	< 5	< 5	< 5
Diethyl Phthalate	< 2	< 2	< 2
Dimethyl Phthalate	< 3	< 3	< 3
Di-n-butylphthalate	< 2	< 2	< 2
2,4-Dinitrotoluene	< 3	< 3	< 3
2,6-Dinitrotoluene	< 3	< 3	< 3
Di-n-octyl phthalate	< 5	< 5	< 5
1,2-Diphenylhydrozine	< 4	< 4	< 4
Fluoranthene	< 2	< 2	< 2